

April 2005

Environmental Assessment

Water Conservation Area No. 1 Palm Beach County, Florida

Temporary Deviation of the Water Conservation Area No. 1 Regulation Schedule for Water Quality Mitigation



U.S. Army Corps
of Engineers
Jacksonville District



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

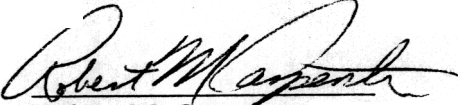
REPLY TO
ATTENTION OF

FINDING OF NO SIGNIFICANT IMPACT
TEMPORARY DEVIATION
TO THE WATER REGULATION SCHEDULE OF
WATER CONSERVATION AREA NO. 1
PALM BEACH COUNTY, FLORIDA

I have reviewed the Environmental Assessment (EA) for the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the EA enclosed hereto. Based on the information analyzed in the EA and pertinent data obtained from Federal and State agencies having jurisdiction by law and/or special expertise, and information obtained from the interested public, I conclude that the considered action would have no significant impact on the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are, in summary:

- a. The goal of the temporary deviation is to minimize the potential increase of phosphorus load in the Arthur R. Marshall Loxahatchee National Wildlife Refuge, which may result from the current WCA-1 regulation schedule.
- b. The action will not adversely affect the balance of authorized purposes of the Central and Southern Florida Project for flood control, water supply, fish and wildlife conservation, and recreation.
- c. The action will not adversely affect the overall existing habitat in the area.
- d. The action will not adversely affect any endangered or threatened species or critical habitat under the Endangered Species Act.

22 APR 05
Date


Robert M. Carpenter
Colonel, U.S. Army
District Engineer

ENVIRONMENTAL ASSESSMENT

Temporary Deviation from the Water Regulation Schedule of Water Conservation Area No. 1 for Water Quality Mitigation Palm Beach County, Florida

1.0 BACKGROUND

1.1 Location

Water Conservation Area No. 1 (WCA-1) is located in Southeast Palm Beach County, covering 143,085 acres, and is located entirely within the Arthur R. Marshall Loxahatchee National Wildlife Refuge (LNWR). The U.S. Fish and Wildlife Service (USFWS) manage the LNWR. See Figure 1 for location map.

1.2 Need for Action

According to the existing Water Regulation Schedule, WCA-1 is operated as a surface water reservoir as part of the Central and Southern Florida Project (C&SF) by the U.S. Army Corps of Engineers, Jacksonville District (Corps) and the South Florida Water Management District (SFWMD). By letter dated January 6, 2005 to the Corps, the SFWMD requested a temporary deviation to the WCA-1 regulation schedule to address a potential water quality problem during times of water supply operations for the Lake Worth Drainage District (LWDD) and Northern Broward County. The current WCA-1 regulation schedule (03 May 1995) includes two conditions under which water supply releases from WCA-1 must be preceded by an equivalent volume of inflow, i.e. replacement water. The conditions are as follows:

A. When the WCA-1 water level elevation (stage) is in Zone A2 or Zone B of the regulation schedule, water supply releases can be made as needed, but must be preceded by an equivalent volume of inflow from Lake Okeechobee (LOK) unless the LOK stage is lower than one foot below the WCA-1 stage.

B. When the WCA-1 water level is in Zone C of the regulation schedule, there can be no water supply releases unless preceded by an equivalent volume of inflow (preceding inflows) from LOK, regardless of LOK level.

The purpose of requiring these preceding inflows is to reduce the frequency of annual dry outs and improve hydrologic conditions for wading birds and aquatic organisms utilizing the LNWR. However, at the present time, deliveries of water from Lake Okeechobee are believed likely to contribute unacceptably high loads of dissolved phosphorus to the LNWR, as levels are higher than usual in Lake Okeechobee waters, following the 2004 hurricane season. It is expected that the proposed action (deviating by not providing make-up water from Lake Okeechobee) would reduce the phosphorus load to LNWR and reduce the stress on Storm-water Treatment Area -1 West (STA-1W). At this time, STA-1W has a

limited capacity to effectively treat water because of overuse in 2003 and damage from the series of hurricanes in 2004. Under these conditions, the staff at the LNWR has concluded that it would be better to tolerate some lower water levels in the Refuge rather than force the flow of water through STA-1W during the dry season, further damaging the STA and lengthening its recovery time.

The LWDD, LNWR, USFWS, SFWMD, and Corps have been holding numerous meetings for the past several months to discuss the issue and determine the best way to handle and resolve the problem. The Corps, in consultation with the SFWMD and the LNWR, is proposing a temporary deviation of the water regulation schedule of WCA-1. The following proposal reflects this collaboration.

2.0 PURPOSE

2.1 Goal

To prevent water quality impacts at the LNWR resulting from the current WCA-1 regulation schedule which requires preceding water supply deliveries to WCA-1. Details of the proposed action can be found in Appendix B of this Environmental Assessment.

2.2 Objectives

The objectives of the proposed action are as follows:

- A. Minimize the potential increase of phosphorus load.
- B. Maximize recovery of STA-1W by deferring the preceding inflow requirement during water supply operations without increasing environmental stress when in Zones A2 and B of the WCA-1 regulation schedule.
- C. Provide reasonable opportunity for water supply releases without significantly reducing protection of fish and wildlife resources in the Refuge.

3.0 ALTERNATIVES

3.1 Alternative 1 (Proposed Action)

Alternative 1 is to deviate from the WCA-1 regulation schedule by dropping the requirement to precede water supply releases by an equal volume of inflow while in zones A2 or B of the regulation schedule. Releases may be made without being preceded by replacement water. If these conditions occur, LNWR has proposed additional criteria to determine when preceding inflows would need to precede water supply releases from WCA-1 as follows:

- A. When the WCA-1 water level is in Zone A2 or Zone B of the regulation schedule, water supply releases must be preceded by an equal volume of inflow if both of the conditions below are met. If these conditions are not met, releases may be made without preceding inflows.

- 1 The LOK stage is no more than one foot below the WCA-1 stage.
- 2 The average water level recession rate in the WCA-1 marsh at sites 1-9 and 1-8T is greater than 0.2 feet over a consecutive 7-day period. A reversal of marsh water levels from rainfall of 0.1 feet/week or above will restart the recession accounting.

B. When the WCA-1 water level is in Zone C of the regulation schedule, water supply releases must be preceded by an equivalent volume of inflow.

3.1.1 Future Modifications to the Proposal

Conditions will be monitored and assessed continuously. Consultation between the LNWR, LWDD, SFWMD, and Corps will occur on a monthly basis, or more often if requested by a participating agency. The LNWR, in consultation with LWDD, SFWMD, and Corps, will consider rescinding the deviation, or developing other options, if the recession rate target is exceeded during any consecutive 7-day time period.

3.1.2 Duration of the Deviation

The intent is to temporarily replace the existing criteria as described in WCA-1 regulation schedule. The need for the deviation is expected to decrease as STA-1W recovers over the next few years and/or when STA-1 east is completed in about a year's time. Eventually the deviation will be superceded by a comprehensive re-evaluation of the regulation schedule, which will include members from the SFWMD, LNWR, USFWS, and LWDD. The temporary deviation is expected to be in place through 2006 in order to capture the 2006 dry season.

3.2 Alternative 2

Alternative 2 is to deviate from the schedule by not releasing water to the Coast (requiring LWDD to impose water restrictions).

3.3 No Action Alternative

The No Action Alternative is to follow the regulation schedule, which would require providing make-up water from Lake Okeechobee whenever water is released to the LWDD.

4.0 AFFECTED ENVIRONMENT

4.1 Water Quality

All the surface waters in the project area are Class III waters; additionally, wetlands and surface waters located within the LNWR are deemed as Outstanding Florida Water (OFW), pursuant to Rule 62-302.700 (9)(b) 17, FAC. The interior marsh of the LNWR is a unique oligotrophic soft-water (low alkalinity) rainfall-driven ecosystem. Included in this ecosystem are algal species that

define the endemic periphyton community, which serves as the base of the ecosystem's food chain. The periphyton community thrives best when phosphorous concentrations are no more than 10 ppb.

4.2 Water Management

Water levels in the LNWR are determined by a water regulation schedule designed to optimize benefits among such competing interests as flood control, water supply (agricultural, municipal, and industrial), fish and wildlife enhancement, prevention of saltwater intrusion, and water supply to Water Conservation Areas 2 and 3 and Everglades National Park. To produce these benefits, the water level in the LNWR is adjusted by releasing water from WCA-1 and/or receiving water from Lake Okeechobee.

4.3 Vegetation and Cover Types

With over 227 square miles of Everglades wetland habitats, the vegetative communities in the LNWR include sloughs, wet prairies, sawgrass, tree islands, cattail, and cypress swamp.

4.4 Wetlands

Essentially all the habitats in the LNWR are considered wetlands, including sloughs, wet prairies, sawgrass, cattail, and cypress swamp. Descriptions of the wetlands in the study area include riverine lower perennial unconsolidated bottom (river systems), palustrine scrub-shrub broad-leaved deciduous (shrub swamps), palustrine scrub-shrub broad-leaved evergreen (Evergreen shrub swamps), and palustrine forested deciduous (swamp systems).

4.5 Fish and Wildlife Resources

According to the USFWS Comprehensive Conservation Plan (2000), the LNWR provides nearly 150,000 acres of wetlands habitat for a wide array of species including as many as 257 bird species (93 which are common) including waterfowl and wading birds, 23 species of mammals, 11 frog and toad species, 10 turtles species, as many as 24 snake species, approximately 40 butterfly species, 23 dragonfly species, and 46 fish species.

The LNWR contains a patchy habitat of wet prairies, ponds and sloughs, brush, facultative wetlands, and tree islands. The tree islands support mixed strands of red bay, wax myrtle, holly and other woody plants. The refuge attracts thousands of wading birds and waterfowl, and provides an excellent fishery resource. According to USACE (1995), the Florida sandhill crane, osprey, mottled duck, whistling duck, and alligator occur year-round in the Refuge. The area is also used by the bald eagle, peregrine falcon, Everglades mink, and snail kite.

4.6 Threatened and Endangered Species

Species listed under the Endangered Species Act (ESA) that could be potentially affected by the proposed temporary deviation are the wood stork (*Mycteria*

americana) and Everglades snail kite (*Rostrhamus sociabilis plumbeus*). The WCA-1 is also designated as critical habitat for the snail kite.

Through electronic (email) correspondence, Section 7 consultation (Appendix A) and verbal communication between the Corps and the LNWR and USFWS staff, it has been reported that there are no wood storks or snail kites nesting in WCA-1 so far this season. The Everglades snail kite nested within the LNWR in 1998 and one nest was noted in 2001, but since then no snail kite pairs have been observed nesting, including the current nesting season.

4.7 Socioeconomics

Table 1 shows population and other statistics for Palm Beach County and Florida (U.S. Census Bureau 2000). There are no private residences inside WCA-1 (LNWR) and no commercial activity. No economically and/or socially disadvantaged populations reside in WCA-1.

Table 1 Population and other statistics for Palm Beach County and Florida.

	Palm Beach County	Florida
Population, 2003 estimate	1,216,282	
Population, percent change, April 1, 2000 to July 1, 2003	7.5%	6.5%
Population, 2000	1,131,184	15,982,378
Population, percent change, 1990 to 2000	31.0%	23.5%
Persons under 5 years old, percent, 2000	5.6%	5.9%
Persons under 18 years old, percent, 2000	21.3%	
Persons 65 years old and over, percent, 2000	23.2%	17.6%
Female persons, percent, 2000		51.2%
Land area, 2000 (square miles)	1,974	53,927
Persons per square mile, 2000	573	296.4

U.S. Census Bureau, 2000

4.8 Water Supply

During water supply conditions, gates G-300 and G-301 may be operated to move water into WCA-1 or withdraw water from WCA-1. The LWDD operates gated culverts 94A, B and C (G-94A, G-94B, and G-94C) located on levee L-40 just south of the project area. In addition, each of the above culverts has an adjacent pump, which can also draw water out of L-40. These structures permit releases of water supply from WCA-1 to the LWDD.

ENVIRONMENTAL EFFECTS

Effects of Implementing Alternative 1 (Proposed Action)

5.1.1 Water Quality

Temporarily deviating from the WCA-1 regulation schedule would avoid deteriorating water quality inside WCA-1 by reducing phosphorus loads to STA-

1W and the LNWR. Water quality improvements would benefit fish and wildlife resources within the LNWR.

5.1.2 Water Management

WCA-1 Regulation Schedule will not be followed completely.

5.1.3 Vegetation and Cover Types

No impacts would be expected.

5.1.4 Wetlands

No impacts would be expected.

5.1.5 Fish and Wildlife Resources

This alternative would allow withdrawals from LNWR without forcing preceding inflows, thus reducing unusually high water levels and potentially improving forage conditions for the wading birds.

5.1.6 Threatened and Endangered Species

No impacts would be expected.

5.1.7 Socioeconomics

No impacts would be expected.

5.1.8 Water Supply

No impacts are expected. Releases would be made to LWDD according to the Regulation Schedule; but under most conditions, make-up water from Lake Okeechobee would not be accepted.

5.2 Effects of Implementing Alternative 2 (do not make supply-side releases when quality of make-up water is not acceptable).

5.2.1 Water Quality

As in the case of Alternative 1, no make-up water would be accepted from Lake Okeechobee; but in this case, no releases would be made to LWDD and Northern Broward County. This would avoid adverse effects of heavier phosphorus loads in the LNWR, due to higher phosphorus concentrations in Lake Okeechobee make-up water. Water quality conditions in the LNWR would be beneficial to fish and wildlife resources.

5.2.2 Water Management

No releases of water from LNWR to LWDD or Northern Broward County would be made. Some additional restrictions in water use might be required.

5.2.3 Vegetation and Cover Types

No impacts would be expected.

5.2.4 Wetlands

No impacts would be expected.

5.2.5 Fish and Wildlife Resources

No adverse impacts to living resources inside LNWR would be expected, as the high-phosphorus make-up water would not be added to the LNWR.

5.2.6 Threatened and Endangered Species

No impacts would be expected.

5.2.7 Socioeconomics

Customers receiving water at the Lake Worth Drainage District might be put on water restrictions. This could disrupt normal daily economic activities and put stress on the system wide water allocations.

5.2.8 Water Supply

Water supply might not be adequate to fill the daily needs of the people receiving the water.

5.3 Effects of Implementing the No Action Alternative

5.3.1 Water Quality

There would be a potential increase of phosphorous load into LNWR due to current high phosphorus concentrations in Lake Okeechobee water and curtailed operations of STA-1W. The no action alternative may adversely impact fish and wildlife resources within the LNWR by altering the composition of the periphyton communities and fostering the spread of cattails, a vegetation type that is of very limited foraging and habitat value.

5.3.2 Water Management

The WCA-1 Regulation Schedule would be followed as written. If preceding water levels in the LNWR are already relatively high due to heavy rainfall, arrival of make-up water could adversely affect optimal foraging stages for wading birds.

5.3.3 Vegetation and Cover Types

Under the no-action alternative, areas covered by undesirable cattail would expand due to the effect of higher dissolved phosphorus levels in LNWR waters. Undesirable changes in the periphyton community might also occur.

5.3.4 Wetlands

No impacts would be expected

5.3.5 Fish and Wildlife Resources

The no action alternative may adversely impact fish and wildlife resources within the LNWR due to vegetation changes cited in Par. 5.3.3. The wading bird colony in WCA-1 may experience adversely high stages (adverse for foraging) if make-

up water were to raise already high water levels, thus requiring birds to travel further from the nest to find good foraging habitat.

5.3.6 Threatened and Endangered Species

No impacts would be expected. The 2005 nesting season for wood storks was interrupted by higher than normal rainfall during the later dry (winter) season, no wood stork or snail kite nesting occurred in the LNWR this year.

5.3.7 Socioeconomics

No impacts would be expected.

5.3.8 Water Supply

No impacts would be expected.

6.0 COORDINATION

By letter dated January 6, 2005, the SFWMD requested a temporary deviation from the WCA-1 regulation schedule for the LNWR. The SFWMD conducted a meeting/teleconference on January 28, 2005 to discuss the details of the action. Federal, state and local agencies were invited to participate in the meeting by electronic (email) correspondence dated January 28, 2005 (see Appendix A).

The proposed temporary deviation was further coordinated with the Technical Oversight Committee (TOC). The Corps briefed the TOC on February 24, 2005 during an update on the Regional Water Management Decision Study. Information regarding this TOC meeting can be found at the following website: http://www.sfwmd.gov/org/ema/toc/archives_mtgs.html#2005

In addition, the proposed temporary deviation was an agenda discussion at the A.R.M. Loxahatchee National Wildlife Refuge Quarterly Water Coordination Meeting held at the SFWMD office in West Palm Beach on April 18, 2005 (see Appendix A for agenda).

A preliminary draft environmental assessment was coordinated with SFWMD, USFWS, LNWR and LWDD on April 18, 2005 for review and comment.

A Finding of No Significant Impact (FONSI) was signed on April 22, 2005. The EA and FONSI were posted to the Corps website on April 22, 2005 at: <http://planning.saj.usace.army.mil/envdocs/envdocsb.htm>

Section 7 consultation was conducted with USFWS by letter dated April 20, 2005, for effects that the temporary deviation may have on endangered species and critical habitat. By letter dated April 20, 2005 the USFWS concurred with the Corps that the proposed temporary deviation "may affect, but is not likely to adversely affect" the wood stork, Everglades snail kite, or result in destruction or adverse modification of designated critical habitat for the Everglades snail kite. Refer to Appendix A, pertinent correspondence, for ESA letters. To further

protect these species, the Corps will continue to coordinate closely with the South Florida Ecological Services Office and the LNWR Refuge Manager before reverting back to the regulation schedule as discussed in the ESA correspondence letters.

REFERENCES

U.S. Army Corps of Engineers (1995). Environmental Assessment and Finding of No Significant Impact for Modification of the Water Regulation Schedule for Water Conservation Area No. 1. Jacksonville District, Jacksonville, Florida.

U.S. Census Bureau. 2000 Palm Beach County. <http://www.census.gov>.

U.S. Fish and Wildlife Service. 2000. A.R.M. Loxahatchee National Wildlife Refuge Comprehensive Conservation Plan, Boynton Beach, Florida.

PERTINENT CORRESPONDENCE

The following correspondence can be found in Appendix A.

1. Letter dated January 6, 2005 from South Florida Water Management District requesting a temporary deviation of the WCA-1 regulation schedule.
2. Electronic (email) correspondence dated January 28, 2005 from the SFWMD inviting Federal, state and local agencies to participate in proposed temporary deviation meeting/teleconference.
3. Meeting agenda for the A.R.M. Loxahatchee NWR Quarterly Water Coordination Meeting held April 18, 2005 at the SFWMD Office in West Palm Beach.
4. Electronic (email) correspondence dated April 19, 2005 from LNWR (USFWS) regarding wading bird nesting status.
5. Letter dated April 20, 2005 prepared by the Corps to the USFWS initiating Section 7 Consultation and the Corps effect determination on endangered species.
6. Letter dated April 20, 2005 from the USFWS with their concurrence response to the Corps' Section 7 determination.
7. Electronic (email) correspondence dated April 18, 2005 prepared by the Corps circulating the EA for comment.

APPENDIX A

Pertinent Correspondence

**SOUTH FLORIDA WATER MANAGEMENT DISTRICT**

3301 Cup Club Road, West Palm Beach, Florida 33406 • (561) 686-8800 • FL WATS 1-800-432-2045 • TDD (561) 697-2574
Mailbox : Address: P.O. Box 24680, West Palm Beach, FL 33416-4680 • www.sfwmd.gov

January 6, 2005

Colonel Robert M. Carpenter
District Engineer
U.S. Army Corps of Engineers
Jacksonville District
P.O. Box 4970
CESAJ-DE
Jacksonville, FL 32232-0019

Dear Colonel Carpenter:

Subject: Temporary Deviation for A.R.M. Loxahatchee National Wildlife Refuge

We would like to request a temporary deviation from the regulation schedule for the A. R.M. Loxahatchee National Wildlife Refuge (Refuge). The schedule currently requires delivery of water at stages that may adversely impact the water quality in the Refuge. Recent attention to phosphorus levels in the Refuge by the Technical Oversight Committee provides a clear impetus to take water management actions to improve Refuge water quality over the short term, and we feel that whether or not this can be completed in time for operations in the 2004-2005 dry season, it will be equally necessary in the future. In making this request, we understand that the temporary deviation would be subject to the Corps' discretion to reinstate the existing schedule if problems arise after its implementation.

The current (May 1995) regulation schedule requires delivery of water to balance water supply releases when the Refuge is in Zones A2 or B, if the Refuge stage is less than one foot above the stage of Lake Okeechobee. Unfortunately, such deliveries may have unintended adverse consequences by contributing to the penetration of this water, containing phosphorus, into the interior of the marsh at stages above 14 - 14.5 feet.

Our request would be to remove this condition related to Lake Okeechobee stage, such that deliveries to balance water supply releases would not be made at these high stages in the Refuge.

We are sensitive to the water supply demands on the Refuge and have worked with Lake Worth Drainage District to evaluate alternative delivery routes, including approximately 500 cfs to the C-51 West Canal.

GOVERNING BOARD

Nicolás J. Gutiérrez, Jr., Esq., *Chair*
Patricia Brinkman-Thomas, *Vice-Chair*
Irela M. Baguá

Michael Collins
Hugh M. English
Lennart E. Lindahl, P.E.

Kevin McCarty
Harkley R. Thornton
Trudi K. Williams, P.E.

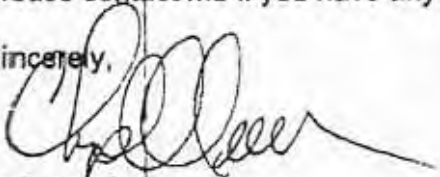
EXECUTIVE OFFICE

Henry Dean, *Executive Director*

Colonel Robert M. Carpenter
January 6, 2005
Page 2

Please contact me if you have any questions.

Sincerely,



Chip Merriam
Deputy Executive Director
Water Resources
South Florida Water Management District

CM/gg

c: Mark Musaus, U. S. Fish and Wildlife Service
Bill Winters, Lake Worth Drainage District

<<Today's 2:30pm Meeting/Teleconference>>

----- Message from "Neidrauer, Calvin" <cal@sfwmd.gov> on Fri, 28 Jan 2005
12:52:48 -0500 -----

To: <Stefani_Melvin@fws.gov>, <Mark_musa@fws.gov>,
<Laura_brandt@fws.gov>, <Mike_waldon@fws.gov>,
<Matthew_harwell@fws.gov>, "Kosier, Thomas" <tkosier@sfwmd.gov>,
"Powell, Dean" <dpowell@sfwmd.gov>, <gary@garygoth.net>,
"Charkhian, Bahram" <bcharkh@sfwmd.gov>, "Sylvester, Susan B SAJ"
<Susan.B.Sylvester@saj02.usace.army.mil>,
<DannaAckermanWhite@lwdd.net>, "Meiers, Damon" <dmeiers@sfwmd.gov>,
<MikeBaker@lwdd.net>, <BillWinters@lwdd.net>,
<PatrickMartin@lwdd.net>, <roncrone@lwdd.net>, "Larson, Kristin"
<klarson@sfwmd.gov>, "Piccone, Tracey" <tpiccone@sfwmd.gov>, "Ammon,
Kenneth" <kammon@sfwmd.gov>, <rolf_olson@fws.gov>, "Bearzotti,
Ronald" <rbearzot@sfwmd.gov>, <michael.anderson@fwc.state.fl.us>,
"Jenkins, Stephanie L SAJ"
<Stephanie.L.Jenkins@saj02.usace.army.mil>, "Albers, E Joseph"
<jalbers@sfwmd.gov>, "Howard, Bob" <bhoward@sfwmd.gov>, "Sculley,
Shawn" <ssculley@sfwmd.gov>, "Mitnik, John" <jmitnik@sfwmd.gov>,
<susan_teel@fws.gov>, "Sklar, Fred" <fsklar@sfwmd.gov>, "Alejandro,
Luis A SAJ" <Luis.A.Alejandro@saj02.usace.army.mil>, "Mierau,
Ronald" <rmierau@sfwmd.gov>, "Hwa, George" <ghwa@sfwmd.gov>,
"Mulliken III, John" <jmulls@sfwmd.gov>, "Kwiatkowski, Peter"
<pkwiat@sfwmd.gov>, "Sculley, Shawn" <ssculley@sfwmd.gov>, "LaRock,
Julianne" <jlarock@sfwmd.gov>, "Abtew, Wossenu" <wabtew@sfwmd.gov>,
"Xue, Shi" <sxue@sfwmd.gov>, "Kwiatkowski, Peter"
<pkwiat@sfwmd.gov>, "Geller, Andrew E SAJ"
<Andrew.E.Geller@saj02.usace.army.mil>

Subj Today's 2:30pm Meeting/Teleconference
ect:

Attached is the PowerPoint file containing the slides we will be discussing
at today's 2:30pm meeting.

I suspect we will have fewer people attending in person than are on the
phone.

I haven't heard back from USFWS/LNWR staff regarding the conference call
number. I'll pursue a state line if I hear nothing before 1:15 or so. So
stay tuned for more email with the number.

Cal

Calvin J. Neidrauer, P.E.

Chief Engineer

Water Control Operations Section

South Florida Water Management District

West Palm Beach, Florida

Office: (561) 682-6506

Fax: (561) 681-2570

E-mail: cal@sfwmd.gov

(See attached file: WCA1_TD_Analysis_28Jan2005.ppt)

(See attached file: WCA1_TD_Analysis_28Jan2005.ppt)

(See attached file: WCA1_TD_Analysis_28Jan2005.ppt)(See attached file:
WCA1_proposed.doc)

AGENDA
A.R.M. Loxahatchee NWR Quarterly Water Coordination Meeting
18 April 2005
South Florida Water Management District conference room 3W
2-4 pm

Introductions- Mark Musaus, A.R.M. Loxahatchee NWR

Current Refuge Water Conditions- Stefani Melvin, A.R.M. Loxahatchee NWR

Regional Conditions- Tom Kosier, SFWMD and Susan Sylvester, COE

Next Three Month Outlook, Position Analysis- Tom Kosier, SFWMD and Susan Sylvester, COE

Constraints on Moving Water-

General- Tom Koiser, SFWMD

STA1-W operations – SFWMD

STA1-E operations -- SFWMD

Lake Worth Drainage District Needs and Issues- Bill Winters, LWDD

Status of Temporary Deviation Request—Susan Sylvester, COE

Notification Chain for Bypass – Stefani Melvin, A.R.M. Loxahatchee NWR

Migratory Bird Issues in STAs – Susan Teel, USFWS, Ecological Services

Other Issues, Discuss of action items from January 2005 meeting.

Wrap Up, and Summary of Action Items

Date and Agenda Items for Next Meeting

Directions to South Florida Water Management District, 3301 Gun Club Road, West Palm Beach, Florida 33406—Conf. Room 3W is in the B2 building.

From the North: I-95 South to Southern Blvd., exit and turn right (west), merge onto Congress Ave South. Right on Gun Club Road. SFWMD is on the right just past the National Guard Armory.

From the South: I-95 North to Southern Blvd, follow directions above.

From the Refuge: Take SR7 North to Forest Hill Blvd. Turn right (east) to Jog Rd. Turn left (north) on Jog Rd. travel to Gun Club Road. Right on Gun Club Road, SFWMD will be on the left just after Lake Lytal Park.

Haberer, Yvonne L SAJ

From: Stefani_Melvin@fws.gov
 Sent: Tuesday, April 19, 2005 12:03 PM
 To: Haberer, Yvonne L SAJ
 Subject: Wading bird nesting status

Yvonne,
 Here is the latest report from the district. There are no wood storks nesting in WCA1 at this time. I will try to get the data from Peter Frederick's folks at the Univ. of Florida as well to back this up.

stefani

Stefani Melvin, Refuge Biologist
 A.R.M. Loxahatchee NWR
 561-735-6039
 Stefani_Melvin@fws.gov

- Forwarded by Stefani Melvin/R4/FWS/DOI on 04/19/2005 12:02 PM ----

"Call, Erynn"

<ecall@sfwmd.gov> To: "Sklar, Fred" <fsklar@sfwmd.gov>, "Rutchev, Kenneth" <krutchev@sfwmd.gov>, "Powell, Dean" <dpowell@sfwmd.gov>, "Ogden, John" <jogden@sfwmd.gov>, "Serino, Jamie" <jserino@sfwmd.gov>, <pcf@mail.ifas.ufl.edu>, <Stefani_Melvin@fws.gov>, <Laura_Brandt@fws.gov>, <Mark_Musaus@fws.gov>, "Dale E. Gawlik" <dgawlik@fau.edu>, <sonny_bass@nps.gov>, <billy_brooks@fws.gov>, <jlorenz@audubon.org>, "Rumbold, Darren" <drumbol@sfwmd.gov>, "Ward, Marsha" <Marsha.Ward@MyFWC.com>, "Garth Herring" <gherrin1@fau.edu>, "BORKHATARIA,RENA REBECCA" <RRBork@ifas.ufl.edu>, <jcsimon@ufl.edu>, "Ali, Malak" <mali@sfwmd.gov>, "Cook, Mark" <mcook@sfwmd.gov>, "Kobza, Mac" <rkobza@sfwmd.gov>
 04/04/2005 03:41 PM
 cc:
 Subject: Wading bird nesting status

Good afternoon,

As most of you know, the wading bird colonies are not doing well because of high water levels and the resultant loss of foraging habitat. Today, we did not survey several colonies (Tamiami East, Heron Alley, Colony 70, New Colony 1 and 2) and instead spent some flight time examining feeding conditions.

Within WCA2A/2B foraging conditions were very poor because of the high water and consequently no flocks were observed.

We flew a transect across the northern portion of WCA3. Only a few flocks of birds were seen; great egret (40 – 50) and a mixed flock of great egret and white ibis (35). Water depth within this area was approximately 10 – 25 cm. No birds were observed foraging in the many airboat trails. Several large flocks totaling around 1000 birds (GREG and WHIB) were spotted several miles west of Alley North (N2613, W8032) and in the near vicinity of the island. The nesting white ibis that were in the cattail on the southwest perimeter of the island are now gone. Perhaps some of the ibis moved to the interior, into the trees because it appeared that there were more ibis present on the island than before.

At Tamiami West we did not see any nest wood storks this time.

Overall, the nesting season this year looks fairly bleak. Without large areas of available foraging habitat, the birds will be unable to support themselves and their offspring. It will take several weeks for water levels to recede again and this may be too late for the birds to recuperate.

On a side note (and happier one) it was confirmed that Alley North does not have a Lygodium infestation but rather some other less threatening vine.

1) WCA3A, Alley North :

1,200 – 1,500 great egret and white ibis nests.

7/28/2005

About 20 roseate spoonbills were seen (nests not confirmed)

2) WCA3A, Crossover :

NO NESTS. Birds observed roosting: 40 wood stork, 100 bird mix of great and snowy egret.

3) WCA3A, Jetport New :

NO NESTS. 50 great egret roosting and foraging just south of Jetport.

4) WCA3A, Hidden :

20 great egret nests. 200 roosting great egret.

5) ENP, Tamiami West :

600 white ibis. 100 great egret / snowy egret mix.

1 wood stork nest (questionable).

6) ENP, Tamiami East :

Did not survey.

7) WCA3B, Heron Alley :

Did not survey

8) WCA2B, 2B Melaleuca :

NO NESTS. South of 2B Melaleuca observed 5 separate foraging flocks of 30 to 40 birds each (mix of great egret, white ibis, and snowy egret).

9) WCA1, Colony 99 :

300 great egret (mix of roosting and nests).

10) WCA1, Colony 73 :

60 great egret nests spread out over 3 islands.

11) WCA1, Colony 70 :

Did not survey.

12) WCA1, New Colony 2 (N 26 27 48, W 80 14 40) :

Did not survey.

13) WCA1, Colony 111 :

1300 mix of white ibis and great egret. Some birds not nesting.

14) WCA1, New Colony 1 :

Did not survey.

15) WCA1, Canal North :

Did not survey.

We are planning on going out again on May 2nd. If you have any comments or questions, feel free to contact myself or Mark.

Regards,

Erynn Call

Environmental Scientist

Everglades Division

South Florida Water Management District

3301 Gun Club Rd.

7/28/2005

West Palm Beach, FL 33416
Phone: (561) 686 8800 x 4538
email: ecall@sfwmd.gov



Haberer, Yvonne L SAJ

From: Haberer, Yvonne L SAJ
Sent: Monday, April 18, 2005 5:57 PM
To: Alejandro, Luis A SAJ; 'Stefani_Melvin@fws.gov'; 'Mark_Musaus@fws.gov'; 'Laura_Brandt@fws.gov'; 'Susan_teel@fws.gov'; 'cal@sfwmd.gov'; 'tkosier@sfwmd.gov'; 'DannaAckermanWhite@lwdd.net'; 'MikeBaker@lwdd.net'; 'BillWinters@lwdd.net'; 'PatrickMartin@lwdd.net'; 'patthepe@bellsouth.net'; 'Sharon_Fauver@fws.gov'; 'Barry_Rosen@fws.gov'
Cc: Smith, Christopher T SAD; Zediak, John E SAJ; Sylvester, Susan B SAJ; Moore, Brooks W SAJ; Cintron, Barbara B SAJ; Ashley, Jonathan A SAJ; Acosta, Ivan SAJ; Haberer, Yvonne L SAJ
Subject: WCA-1 Temp. Deviation Preliminary EA

Team,

As requested at the A.R.M. Loxahatchee NWR quarterly water coordination meeting today, I'm providing a preliminary draft EA for the proposed temp. deviation to the team for a quick review. Since I'm extremely new to the team (2-full working days), I will be brave and ask that if you have any comments on the EA, to please have those comments to me NLT 4:00 P.M. tomorrow, April 19. Just track any changes and return to me via email.

Thank you all in advance for your cooperation and quick review.

-Yvonne

Yvonne Haberer
Biologist
U.S. Army Corps of Engineers
Planning Division
Environmental Branch
701 San Marco Boulevard
Jacksonville, Florida 32207
904-232-1701
yvonne.l.haberer@usace.army.mil



WCA1DRAFTEA.do

c

Haberer, Yvonne L SAJ

From: Danna Ackerman-White [dannaackermanwhite@lwdd.net]
Sent: Tuesday, April 19, 2005 3:32 PM
To: Haberer, Yvonne L SAJ
Subject: RE: WCA-1 Temp. Deviation Preliminary EA

Yvonne, Lake Worth Drianage District has reviewed the attached draft EA and do not have any additional comments. Thank you for the opportunity to review it prior to completion.

Danna Ackerman-White

-----Original Message-----

From: Haberer, Yvonne L SAJ [mailto:Yvonne.L.Haberer@saj02.usace.army.mil]

Sent: Monday, April 18, 2005 5:57 PM

To: Alejandro, Luis A SAJ; Stefani_Melvin@fws.gov; Mark_Musaus@fws.gov; Laura_Brandt@fws.gov; Susan_teel@fws.gov; cal@sfwmd.gov; tkosier@sfwind.gov; DannaAckermanWhite@lwdd.net; MikeBaker@lwdd.net; BillWinters@lwdd.net; PatrickMartin@lwdd.net; patthepe@bellsouth.net; Sharon_Fauver@fws.gov; Barry_Rosen@fws.gov
Cc: Smith, Christopher T SAD; Zediak, John E SAJ; Sylvester, Susan B SAJ; Moore, Brooks W SAJ; Cintron, Barbara B SAJ; Ashley, Jonathan A SAJ; Acosta, Ivan SAJ; Haberer, Yvonne L SAJ
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Thank you all in advance for your cooperation and quick review.

-Yvonne

Yvonne Haberer
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<<WCA1DRAFTEA.doc>>

7/28/2005



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning Division
Environmental Branch

APR 20 2005

Mr. Jay Slack
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960-3559

Dear Mr. Slack:

In accordance with the provisions of Section 7 of the Endangered Species Act, as amended, the U.S. Army Corps of Engineers (Corps) is providing the following information concerning the proposed temporary deviation to the water regulation schedule for Water Conservation Area No. 1 (WCA-1), in Palm Beach County, Florida.

The goal of the proposed temporary deviation is to minimize the potential increase of phosphorus load in the Arthur R. Marshall Loxahatchee National Wildlife Refuge (Refuge), which may result from the current WCA-1 regulation schedule. The current (May 1995) regulation schedule for WCA-1 requires delivery of water to balance water supply releases when the Refuge is in Zones A2 or B, if the Refuge stage is less than one foot above the stage of Lake Okeechobee. Unfortunately, such deliveries at this time may have unintended adverse effects by contributing to the phosphorus load to the Refuge. It is expected that the proposed action would reduce the phosphorus load to the Refuge and reduce the stress on Storm Treatment Area -1 West (STA-1W) currently associated with treating the preceding inflows as required by the WCA-1 regulation schedule. The STA-1W has limited capacity at this time to effectively treat water due to overuse in 2003 and damage from the hurricanes that passed through South Florida in 2004. Details of the proposed temporary deviation can be found in the attached Environmental Assessment (EA). The EA also serves as the Biological Assessment for this action.

The temporary deviation has been coordinated with your staff over the past few months through a series of meetings between the Corps, South Florida Water Management District, Lake Worth Drainage District, and the Refuge. Through this coordination, much information regarding the scope and purpose of the proposed deviation has been provided. The duration of the temporary deviation is to be determined but could possibly extend through the 2005-06 dry season. Endangered species of concern that could potentially be affected by the temporary deviation are the wood stork (*Mycteria Americana*) and Everglades snail kite (*Rostrhamus sociabilis plumbeus*). The WCA-1 is also designated as critical habitat for the Everglades snail kite.

Through electronic mail and verbal communication between the Corps and Refuge staff, it has been reported that there are no wood storks or snail kites nesting in WCA-1 so far this season. It has been reported, however, that some wading bird colonies, mainly egret and ibis, do

exist within WCA-1. To assure that adverse impact does not occur to the wading bird colony or the endangered species listed above, conditions will be monitored and assessed continuously and adjustments to the temporary deviation may be made accordingly to protect these species. To further protect these species and their habitat, the Corps will consult directly with your office and the Refuge before reverting back to the regulation schedule. The Refuge/U.S. Fish and Wildlife Service, in consultation with the Corps, can consider rescinding the deviation, or develop other options, that would be most protective of fish and wildlife resources in WCA-1.

Based on the information provided above, and the information contained in the EA, the Corps has determined that the temporary deviation will not adversely affect the wood stork, Everglades snail kite, or result in destruction or adverse modification of designated critical habitat for the Everglades snail kite. Your concurrence on this determination is requested.

If you have any questions or need additional information, please contact Ms. Yvonne Haberer at 904-232-1701.

Sincerely,

A handwritten signature in black ink, reading "Dennis W. Barnett". The signature is fluid and cursive, with the first name "Dennis" and last name "Barnett" clearly legible. The middle initial "W." is smaller and less distinct.

Dennis Barnett, P.E.
Acting Chief, Planning Division



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



April 20, 2005

Mr. Dennis Barnett
Acting Chief, Planning Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Service Log Number: 4-01-05-I-11808
Date Received: April 20, 2005
Project: Loxahatchee National Wildlife Refuge
Temporary Deviation
County: Palm Beach

Dear Mr. Barnett

The Fish and Wildlife Service (Service) has reviewed your letter dated April 20, 2005, requesting concurrence and the draft Environmental Assessment/Biological Assessment describing the proposed temporary deviation to the A.R.M. Loxahatchee National Wildlife Refuge (LNWR) water regulation schedule. This letter is submitted in accordance with section 7 of the Endangered Species Act of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et. seq.*).

PROJECT DESCRIPTION

The proposed temporary deviation will drop the requirement to precede water supply releases by an equal volume of inflow while in zones A2 or B of the regulation schedule. If these conditions for zones A2 and B are met, releases may be made without being preceded by replacement water. The temporary deviation is expected to minimize the potential increase in phosphorus load in the LNWR, which may be associated with passing untreated water to meet the current LNWR regulation schedule.

The current (May 1995) regulation schedule was developed to reduce the frequency of annual dry outs and improve hydrologic conditions for wading birds and aquatic organisms, and improve Everglade snail kite (*Rostrhamus sociabilis plumbeus*) habitat. This regulation schedule requires delivery of water to balance water supply releases when LNWR is in zones A2 or B if LNWR stage is less than one foot above the stage of Lake Okeechobee. Such deliveries at this time may have adverse effects by contributing to the phosphorus load to LNWR. It is expected that the proposed action would reduce the phosphorus load to LNWR and reduce the stress on Storm Treatment Area – 1 West (STA-1W) currently associated with treating the preceding



inflows as required by LNWR regulation schedule. The duration of the temporary deviation is to be determined but could possibly extend through the 2005-2006 dry season.

THREATENED AND ENDANGERED SPECIES

The Service has reviewed our Geographic Information System (GIS) database for recorded locations and information on federally listed threatened and endangered species and critical habitats in the project vicinity including the wood stork (*Mycteria americana*) and the Everglade snail kite. The GIS database is a compilation of data received from several sources. The Service has not conducted a site inspection to verify species occurrence or validate the GIS results.

Our GIS database records indicate that wood storks nested within the LNWR during 2003 and 2004, but they are not nesting this year (Frederick, personal communication, 2004). LNWR's goal in this area is to protect and enhance foraging habitat for breeding wood storks.

The snail kite has experienced population fluctuations associated with hydrologic influences, both man-induced and natural. Water management actions in the Everglades are the most important human-controlled factor in the survival and recovery of the snail kite (Service 2004). Our GIS database records indicate the Everglade snail kite nested within the LNWR in 1998 and one nest was noted in 2001. There have been no snail kite nests observed in LNWR since 2001 including the current nesting season.

Your April 20, 2005, letter indicates the proposed action "will not adversely affect" the wood stork, Everglade snail kite, or result in destruction or adverse modification of designated critical habitat for the Everglade snail kite. Provisions included in the temporary deviation to assure that adverse effects do not occur to the wading bird colony or the endangered species listed above, include continuous monitoring and assessment of water levels and the flexibility for adjustments to the temporary deviation, accordingly. To further protect these species and their habitat, the Corps will continue to coordinate closely directly with the South Florida Ecological Services Office and the LNWR Refuge Manager before reverting back to the regulation schedule. The Refuge/Service, in consultation with the Corps, South Florida Water Management District, and Lake Worth Drainage District can consider rescinding the deviation or develop other options that would be most protective of fish and wildlife resources in LNWR.

Climatological conditions in the last year, including four named hurricanes in 2004 and several large rain events late in the dry season, have resulted in unusually high stages in LNWR. The requirement of the current regulation schedule to deliver preceding inflows may adversely affect the wading bird colony in the Greater Everglades system by raising already high water levels thus requiring birds to travel further from the nest to find good foraging habitat. This colony consists of over 1,300 paired birds mostly ibises and egrets. The proposed temporary deviation will allow withdrawals from LNWR without forcing preceding inflows thus reducing unusually high water levels and potentially improving forage conditions for the wading birds.

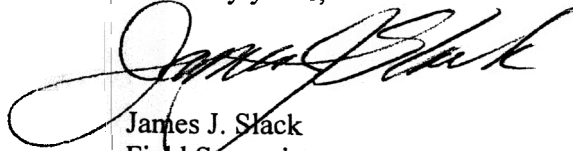
Mr. Dennis Barnett

Page 3

We concur that the proposed temporary deviation, including the provisions described above, "may affect, but is not likely to adversely affect" the wood stork or Everglade snail kite, or result in adverse modification of designated critical habitat for the Everglade snail kite.

We look forward to continuing working with you and providing technical support during all phases of this action. If you have questions or comments, please contact Susan Teel, Fish and Wildlife Biologist, at 772-532-8965.

Sincerely yours,



James J. Slack
Field Supervisor
South Florida Ecological Services Office

cc:

District, West Palm Beach, Florida (Tom Kozier)
Lake Worth Drainage District, Delray Beach, Florida (Bill Winters)
Service, LNWR, Boynton Beach, Florida (Mark Musaus)

LITERATURE CITED

U.S. Fish and Wildlife Service. 2004. Multi-species Conservation under the Comprehensive Everglades Restoration Plan (CERP) Part 1 Initial CERP Update (ICU) Footprint Analysis Planning Aid Report. Fish and Wildlife Service, Vero Beach, Florida.

APPENDIX B

WCA-1 Regulation Schedule Temporary Deviation Plan

WCA-1 Regulation Schedule Temporary Deviation

Goal

- Prevent water quality concerns at LNWR that may result from the current WCA-1 regulation.

Objectives

- Minimize the potential increase of phosphorus load associated with the requirement to make preceding inflows to match water supply withdrawals while in Zones A2 and B of the WCA-1 regulation schedule.
- Maximize recovery of STA-1W by deferring the preceding inflow requirement during water supply operations without increasing environmental stress while in Zones A2 and B of the WCA-1 regulation schedule.

Background

- The WCA-1 Regulation Schedule (03 May 1995) has two conditions that require water supply releases from WCA-1 to be preceded by an equivalent volume of inflow. Reference attached WCA-1 regulation schedule for details.
- Normal operations require that when either of these two conditions occurs, then SFWMD will bring water into WCA-1 to meet the equivalent inflow requirement based on a 7-day accounting period.
- LWDD, LNWR, SFWMD and USACE have been holding numerous meetings for the past several months to discuss the issue and determine the best way to handle and resolve the issue.
- SFWMD formally requested a temporary deviation to the regulation schedule by letter dated January 6, 2005.
- Broward Co. and LWDD use water supply provided by S-39.
- LNWR proposed the use of a recession rate as the indicator to govern the conditions for water supply releases. The intent is to temporarily replace the existing conditions that govern the conditions for water supply releases as described in WCA-1 regulation schedule.

Constraints

- Limitation on the capacity of STA-1W to treat water. Overuse in 2003 has impaired treatment effectiveness and hurricanes in 2004 further damaged STA-1W.
- On-going construction of STA-1E. Expected to be operational in one year but may not be completely ready for treatment within that time.

WCA-1 Regulation Schedule Temporary Deviation

- LWDD has maximized withdrawals from the alternate water supply source (C-51). LWDD has agreed to use C-51 to the maximum extent possible. However, demands in the central & southern section of LWDD's systems cannot be met with C-51 withdrawals only.

Proposal

- The maximum recession rate proposed by LNWR was of 0.2 feet/week. This recession rate is based on the average ET rate of 0.03 feet/day x 7 days = 0.21 feet/week.
- A reversal of marsh water levels from rainfall of 0.1 feet/week or above will restart the recession accounting.
 1. The recession rate will be based on the average Site 1-9 and Site 1-8T. The rationale of using these gages is because they are more representative of the marsh conditions during the dry years.
 2. When Site 1-8C recedes to 14.5 feet-NGVD or an elevation at the discretion of the LNWR Refuge Manager or his authorized representative, then untreated inflows to WCA-1 can be delivered to the L-40 borrow canal via G-300 to meet the preceding inflow requirement. The rationale of using 14.5 feet-NGVD as the indicator is because this was the elevation, in which water in the canal decouples from the marsh. Therefore, discharges made into the canal at this elevation or below are not likely to significantly affect the marsh conditions.
 3. If a significant rainfall event is forecasted while the above condition is in effect, then, the above condition may be halted at the direction of the USACE and SFWMD in consultation with the LNWR Refuge Manager and LWDD Manager.

Summary

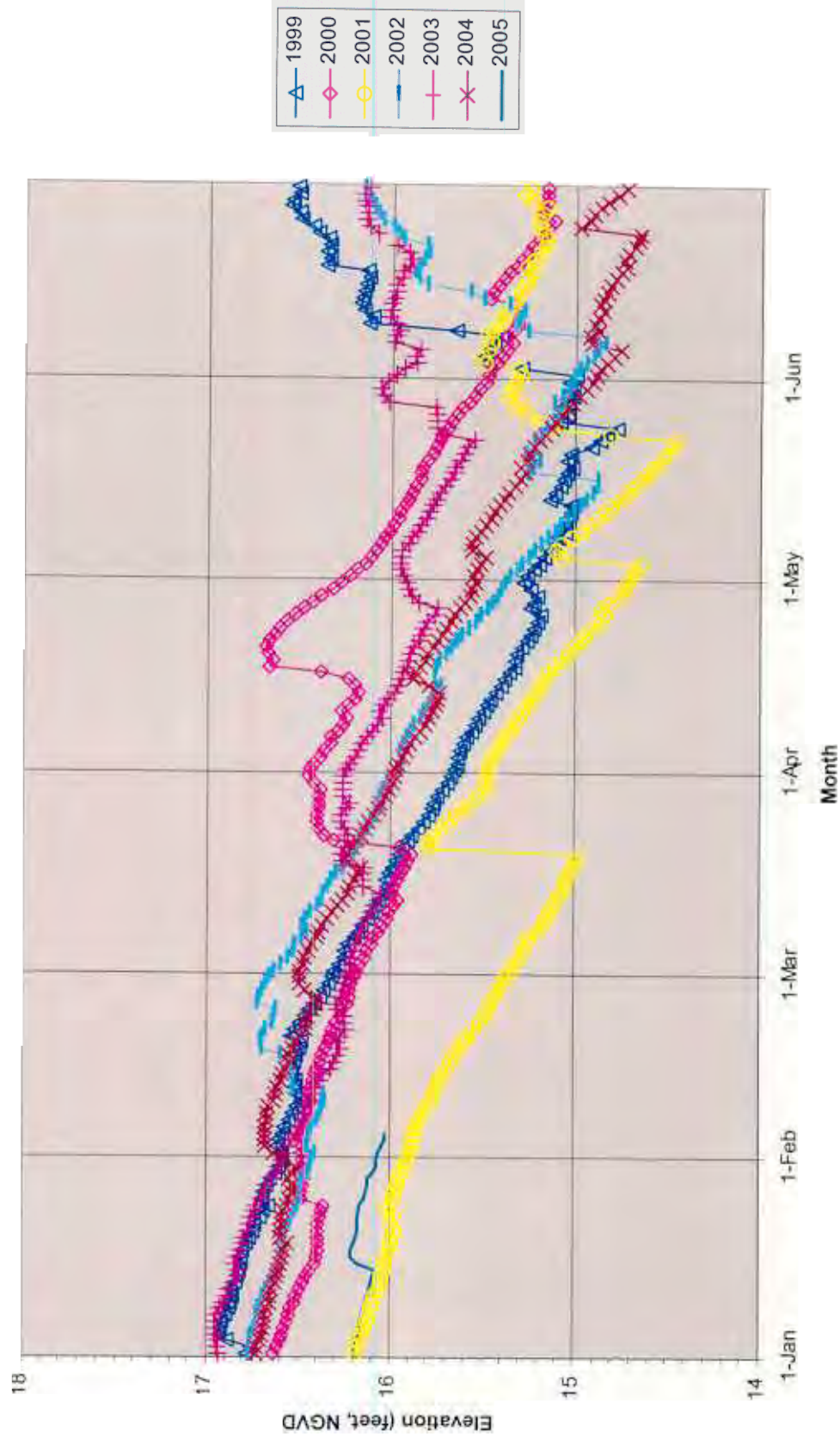
The goals of this proposed temporary deviation are to reduce the unnecessary phosphorus load to the LNWR and to reduce the stress on STA-1W from treating the preceding inflows as required by the WCA-1 regulation schedule. During 2005-2006 dry season operations, when the WCA-1 Regulation Schedule calls for water supply releases to be preceded by equal inflow volumes, the recession rate in WCA-1 as measured at the average of the 1-9 (interior marsh) and 1-8T (canal/marsh interface) gages will be utilized to assess the need to provide water from Lake Okeechobee.

Conditions will be monitored and assessed continuously and adjustments to this proposal will be made, accordingly. Consultation between LWDD, LNWR, SFWMD and USACE will occur on a monthly basis or more often if requested by a participating agency.

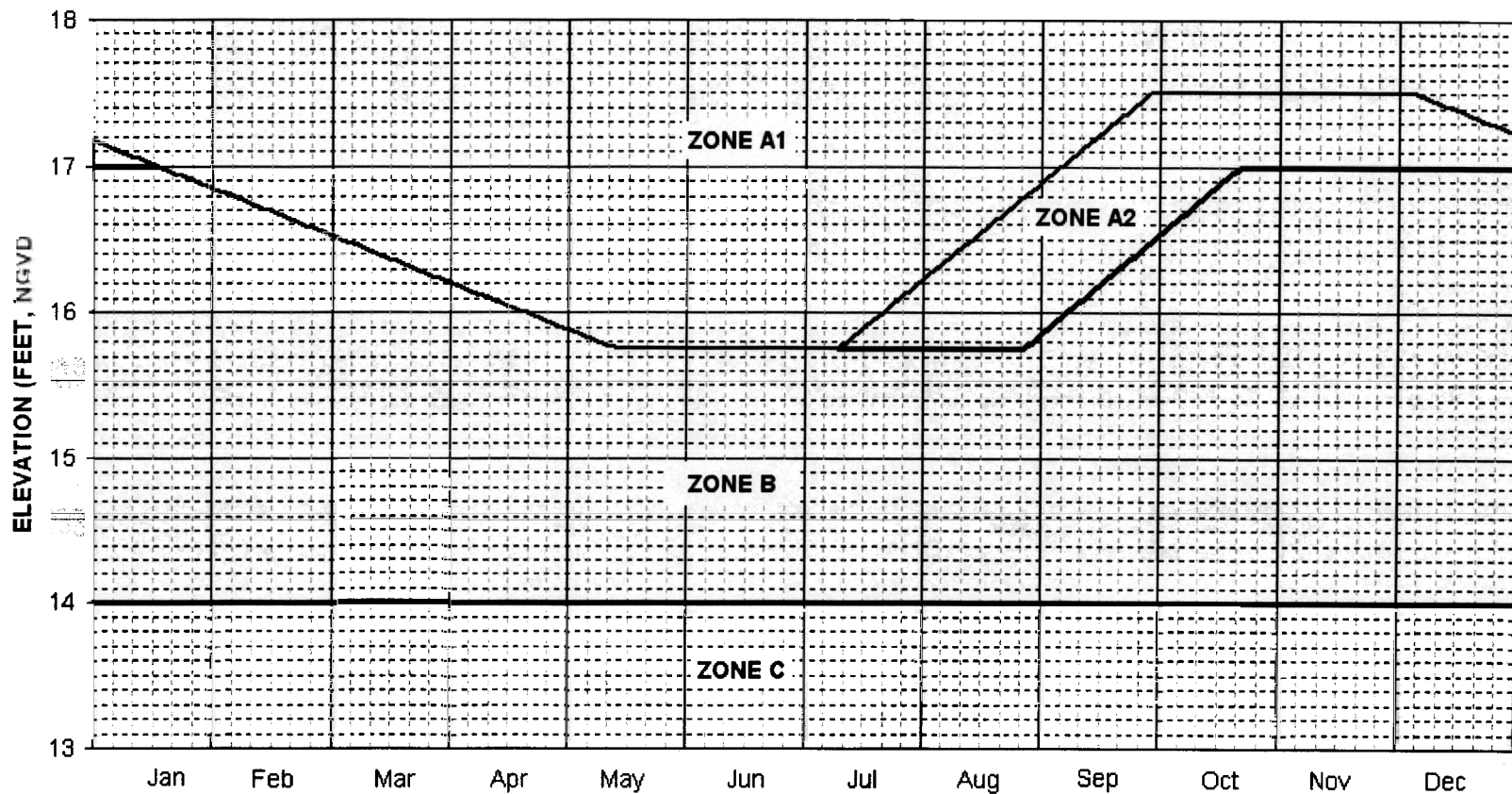
The scope of this temporary deviation is limited to the water supply provisions of the WCA-1 regulation schedule and is not intended to address phosphorous load accounting issues.

WCA-1 Regulation Schedule Temporary Deviation

Average (1-9, 1-8T)



WCA-1 Regulation Schedule Temporary Deviation



ZONE	RELEASES
A1	UP TO MAXIMUM AT S-10 (AND S-39 WHEN AGREED BETWEEN CORPS AND SPWMD). WATER SUPPLY RELEASES AS NEEDED
A2	S-10 RELEASES BASED ON CORPS FORECASTS. WATER SUPPLY RELEASES AS NEEDED. IF LAKE OKEECHOBEE STAGE IS ABOVE WCA-1 STAGE OR NO MORE THAN ONE FOOT BELOW WCA-1 STAGE, THEN WATER SUPPLY RELEASES FROM WCA-1 MUST BE PRECEDED BY AN EQUIVALENT VOLUME OF INFLOW.
B	WATER SUPPLY AS NEEDED. IF LAKE OKEECHOBEE STAGE IS ABOVE WCA-1 STAGE OR NO MORE THAN ONE FOOT BELOW WCA-1 STAGE, THEN WATER SUPPLY RELEASES FROM WCA-1 MUST BE PRECEDED BY AN EQUIVALENT VOLUME OF INFLOW.
C	NO NET RELEASES FROM WCA-1. ANY WATER SUPPLY RELEASES MUST BE PRECEDED BY AN EQUIVALENT VOLUME OF INFLOW.

DATES	USE GAGE	CONDITIONS
1 JAN - 30 JUN	1-8 CANAL	ALL
1 JUL - 31 DEC	1-8 CANAL	EXCEPT AS NOTED BELOW
	AVG. 1-7, 1-8T, 1-9	DURING RISING STAGES WHEN CANAL STAGE EXCEEDS AVERAGE.

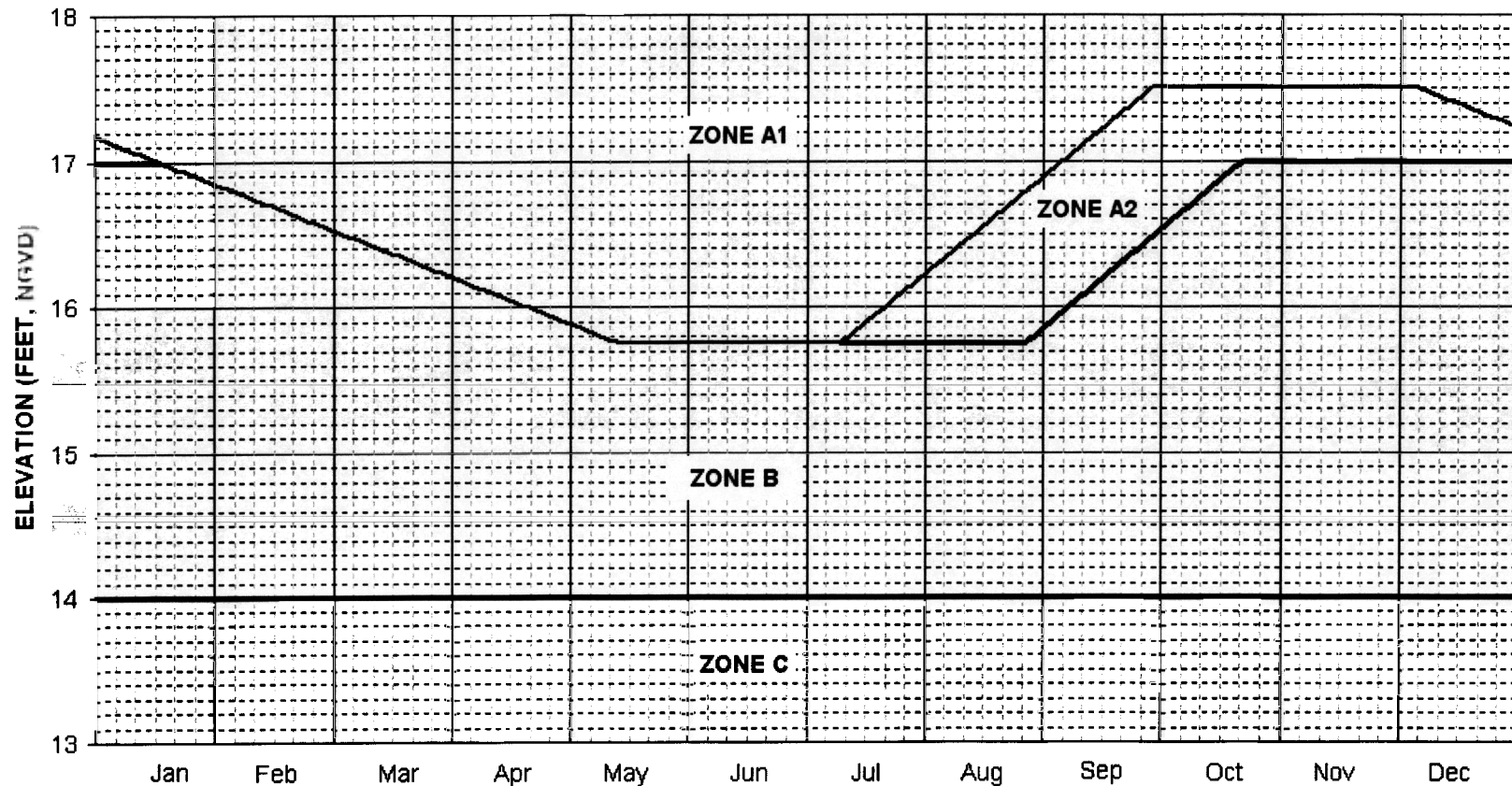
CENTRAL AND SOUTHERN FLORIDA
INTERIM REGULATION SCHEDULE

WATER CONSERVATION AREA NO. 1

DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF
ENGINEERS
JACKSONVILLE FLORIDA

CURRENT

WCA-1 Regulation Schedule Temporary Deviation



ZONE	RELEASES
A1	UP TO MAXIMUM AT S-10 (AND S-39 WHEN AGREED BETWEEN CORPS AND SFWMD). WATER SUPPLY RELEASES AS NEEDED.
A2	WATER SUPPLY RELEASES BASED ON CORPS FORECASTS. WATER SUPPLY RELEASES AS NEEDED. IF LAKE OKEECHOBEE STAGE IS ABOVE WCA-1 STAGE OR NO MORE THAN ONE FOOT BELOW WCA-1 STAGE, AND THE RECESSION RATE IS GREATER THAN 0.2 FEET/ WEEK, THEN WATER SUPPLY RELEASES FROM WCA-1 MUST BE PRECEDED BY AN EQUIVALENT VOLUME OF INFLOW. THE RECESSION RATE WILL BE BASED ON THE AVERAGE OF 1-9 AND 1-8T*. A REVERSAL IN THE RECESSION RATE OF 0.1 FEET OR MORE PER WEEK WILL RESTART THE ACCOUNTING.
B	WATER SUPPLY AS NEEDED. IF LAKE OKEECHOBEE STAGE IS ABOVE WCA-1 STAGE OR NO MORE THAN ONE FOOT BELOW WCA-1 STAGE, AND THE RECESSION RATE IS GREATER THAN 0.2 FEET/ WEEK, THEN WATER SUPPLY RELEASES FROM WCA-1 MUST BE PRECEDED BY AN EQUIVALENT VOLUME OF INFLOW. THE RECESSION RATE WILL BE BASED ON THE AVERAGE OF 1-9 AND 1-8T*. A REVERSAL IN THE RECESSION RATE OF 0.1 FEET OR MORE PER WEEK WILL RESTART THE ACCOUNTING. WHEN 1-8C RECEDES TO 14.5 FEET-NGVD OR BELOW, THE RECESSION RATE INDICATOR WILL NO LONGER BE IN EFFECT. WATER MAY BE DELIVERED DIRECTLY INTO THE CANAL. IF A SIGNIFICANT RAINFALL EVENT IS FORECASTED, WATER DELIVERIES MAY BE HALTED AT THE DISCRETION OF THE USACE AND SFWMD IN CONSULTATION WITH THE LNMV REFUGEE MANAGER AND LWDD MANAGER.
C	NO NET RELEASES FROM WCA-1. ANY WATER SUPPLY RELEASES MUST BE PRECEDED BY AN EQUIVALENT VOLUME OF INFLOW.

DATES	USE GAGE	CONDITIONS
1 JAN - 30 JUN	1-8 CANAL	ALL
1 JUL - 31 DEC	1-8 CANAL	EXCEPT AS NOTED BELOW
	AVG. 1-7, 1-8T, 1-9	DURING RISING STAGES WHEN CANAL STAGE EXCEEDS AVERAGE.
*TEMPORARY DEVIATION DURATION	AVG. 1-9, 1-8T	EXCEPT WHEN 1-8C RECEDES TO 14.5 FEET/NGVD OR BELOW

CENTRAL AND SOUTHERN FLORIDA
INTERIM REGULATION SCHEDULE

WATER CONSERVATION AREA NO. 1

DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF
ENGINEERS
JACKSONVILLE FLORIDA

PROPOSED

20Apr2005 - 5/5